

UNITED STATES OF AMERICA

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FEDERAL COMMUNICATIONS COMMISSION

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NATIONAL COORDINATION COMMITTEE

TECHNOLOGY SUBCOMMITTEE

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THURSDAY

NOVEMBER 21, 2002

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The Subcommittee met in the Auditorium of the New York Fire Department Headquarters, 9 Metrotech Center, Brooklyn, New York, at 9:00 a.m., Glen Nash, Chairman, presiding.

PRESENT:

GLEN NASH	Chairman
JOHN POWELL	Member
ROBERT SCHLIEMAN	Member
MICHAEL WILHELM	Designated Federal Officer to NCC

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P R O C E E D I N G S

Time: 10:53 a.m.

CHAIRMAN NASH: Okay, this will be a relatively short meeting to tell you I hope you are ready.

Okay, I've only got two items to discuss.

The first is a carryover from our last meeting. As you of you at that meeting may recall, we put together a statement regarding the issue about the design for received signal levels.

I had written down a statement and put it out verbally, and I thought we all had agreement as to what that statement was. Since then, one or two people have said that they had slightly different understandings of versions of what the statement was.

So, therefore, I sat down and I wrote down what my notes said the statement was, and that is on the back table, and I would like to go over that, and I understand Bob has got some comments.

MR. SCHLIEMAN: The first one had to do with three miles. I know we have been working on the channel packing program to provide a default set of pool channel allotments for the regional planning committees, and Bernie Olsen, as I understand it, had

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1 suggested that we use three miles for suburban and
2 rural where you don't have high intensity building
3 construction, and five miles for urban area where you
4 have intense building construction, to more
5 practically reflect the signal needs at the
6 jurisdictional boundary.

7 I wondered if we should make that kind of
8 distinction in this document.

9 The second question had to do with the use
10 of the word should in the case of the 50 dBu in the
11 last sentence: In doing so, however, users should not
12 increase the signal levels, to users are not to
13 increase signal levels outside their operational area
14 that would cause additional interference through co-
15 and adjacent channels.

16 CHAIRMAN NASH: I think those are two
17 distinctly different questions.

18 MR. SCHLIEMAN: Yes, they are.

19 CHAIRMAN NASH: We'll deal with the first
20 one. Again, you are introducing a new idea here of
21 having different areas. Again, we had defined the
22 operational area of an agency as opposed to
23 specifically a system design area, if you will.

24 While the operational area -- and as we

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1 have defined it here as being the jurisdictional area
2 plus three miles. I will admit, you know, that that
3 definition is arbitrary in nature. It grew out of a
4 definition that at least some of the RPCs had used in
5 the 800 megahertz arena. But as I say, it's an
6 arbitrary number. I guess we can discuss using other
7 arbitrary numbers.

8 Do we want to -- I guess my initial
9 reaction on your comment is I don't disagree with the
10 fact that you need a higher signal level potentially
11 in an urbanized area with high rise buildings and that
12 at the jurisdictional boundary, but is that a reason
13 to change here what we have called the operational
14 area, which sort of refers to the need of somebody to
15 go beyond their own jurisdiction?

16 MR. SCHLIEMAN: I guess, speaking from a
17 regional planning committee perspective, the
18 operational area, I guess, in my mind would be defined
19 as the area that included the jurisdiction plus any
20 contractual mutual aid or whatever, contractual
21 service requirements that are outside of your
22 political jurisdiction.

23 For instance, you might have a contractual
24 requirement to provide service, be it EMS, fire or law

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1 enforcement, in an adjoining area --

2 CHAIRMAN NASH: But you know --

3 MR. SCHLIEMAN: -- which would, therefore,
4 make your operational or service area be a little bit
5 larger than your jurisdictional area where
6 jurisdiction is defined as your political
7 jurisdiction.

8 CHAIRMAN NASH: Well, Bob, but I guess my
9 interpretation would be, you know, if I've entered
10 into a contract with my neighbor to provide service
11 there, is that that is not within my jurisdictional
12 area.

13 MR. SCHLIEMAN: Okay. All right.

14 CHAIRMAN NASH: I have an agreement to
15 provide service there. Our concern here is --

16 MR. SCHLIEMAN: The buffer zone, the three
17 to five miles.

18 CHAIRMAN NASH: -- is how big should the
19 buffer zone be, and I know, certainly from my own
20 experience, that you will have some agencies who say,
21 well, you know, once a year I have to go to the state
22 capital for some meetings, and I ought to have
23 coverage in the state capital while I'm up there or,
24 you know, once a year I go to Washington, D.C. for

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1 some meetings, and I ought to have coverage when I'm
2 in Washington.

3 We've always said, you know, well, that's
4 not reasonable in the design of radio systems and the
5 protection of frequencies. So I guess the arbitrary
6 number is the RPCs sort of arrived at three miles as
7 being a reasonable buffer zone, but it is an arbitrary
8 buffer.

9 I think, you know, we would all agree that
10 a state capital 100 miles away is probably not
11 reasonable. So what between three and 100 is
12 reasonable?

13 MR. SCHLIEMAN: I think that wasn't
14 exactly the intent, to provide long range
15 communications, but rather that this buffer zone
16 represented a definition for a 40 dBmu signal contour.

17 So that within the jurisdictional area you would be
18 able to do portable operation as opposed to mobile
19 operation only.

20 CHAIRMAN NASH: Okay, but I guess on that
21 point, you know, that was part of the intent of the
22 statement further down saying that you are encouraged
23 to design for 50 dBm to allow for that in-building
24 coverage, to the extent that you don't unreasonably

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1 encroach upon other users outside.

2 MR. SCHLIEMAN: I would submit that the 50
3 dBm came into discussion based on carrier to
4 interference plus noise ratio based on the CMRS
5 experiences we have been having, and that that wasn't
6 -- that was only part of it, to improve the in-
7 building.

8 CHAIRMAN NASH: Well, you're right. It
9 first came up in the context of the CMRS interference
10 question, but again in the discussion at our last
11 meeting we did get into, well, another reason for it
12 is for that improved building penetration. So again
13 I'm open to other numbers.

14 MR. SCHLIEMAN; I yield to Dave Eierman as
15 much more experienced than I on this.

16 MR. EIERMAN: Yes, David Eierman,
17 Motorola.

18 I think there is a terminology issue there
19 of what you call that buffer zone. You know, to me, I
20 call the 40 dBm a regulatory service contour, and
21 that's sort of, you know, beyond the jurisdictional
22 boundary by some distance.

23 I don't believe three miles is arbitrary.
24 There was engineering analysis done on NPSPAC

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1 channels back in -- you know, 15-20 years ago, of
2 where that three miles came up from or where it came
3 from. You know, last August-September there was a
4 document submitted to NCC prepared by Bernie Olson
5 that went through this analysis for 700.

6 The issue is, in order to get the
7 reliability that we need at the jurisdictional
8 boundary of 97 percent for portable coverage, in-
9 building or whatever, this regulatory contour has to
10 be some distance outside of the jurisdiction to meet
11 those requirements.

12 The distance -- You know, Bernie redid the
13 analysis, and the distance comes up, in rural areas
14 where you can use lower signal strengths, because you
15 don't have the building penetration requirements, the
16 number comes up at about -- at three miles beyond the
17 jurisdictional boundary, you can get the 97 percent
18 reliability coverage you need at the jurisdictional
19 boundary if you design your signals a certain way.

20 To tell you the truth, you've pretty much
21 got to put sites close to the border and point the
22 antennas in to meet even the three-mile requirement.

23 In urban areas, because you need increased
24 signal strengths to get building penetration, you

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1 know, it's almost impossible to meet the three mile
2 requirement. The mileage actually needs to be
3 something on the order of five miles. Otherwise, you
4 are putting the antenna sites right on the border and
5 have to use high gain directional antennas to shoot
6 the signal back into the coverage area in order to
7 meet the 40 dBm limit that a five-mile distance
8 outside the border.

9 So there has been extensive analysis of
10 this, and these aren't arbitrary numbers. There is a
11 basis on where these numbers came from.

12 MR. WILHELM: On that subject, for those
13 of you who have not seen the paper, TIA with Bernie
14 Olson as the author did an excellent analysis of this
15 issue, and I don't know whether that is available on
16 the Web.

17 MR. O'HARA: On this very issue here? It
18 is not yet.

19 MR. WILHELM: I think it would be useful
20 to the committee if it could be available. It's just
21 an excellent piece of work and, I think, will
22 enlighten the committee on this issue.

23 MR. O'HARA: Sean O'Hara, Syracuse
24 Research Corporation. Actually, the documentation of

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1 that work that Bernie did, as well as those
2 recommendations, are contained within the Regional
3 Planning Guidebook. I think it's Appendix K. So it's
4 not only spelled out in detail there, the engineering
5 analysis, but actually included in there is
6 recommendations for standard practices for regional
7 planning.

8 CHAIRMAN NASH: Okay, let's try to get
9 down to the issue of Bob's question. Do we want to
10 modify this statement then to have two definitions of
11 the operational area, one that applies to, if you
12 will, rural and suburban areas being three miles, and
13 one that applies to urban areas of being five miles?
14 Isn't that what you are suggesting, Bob?

15 MR. SCHLIEMAN: Yes, that's -- I think
16 that is consistent with what the recommendation was in
17 that paper.

18 CHAIRMAN NASH: Any comments about that
19 suggested change?

20 MR. SALIBA: Jean-Pierre Saliba, State of
21 Florida. Only if you define what rural and urban is,
22 and in the State of Florida we are having difficulty
23 finding out that in some areas using three mile is
24 applicable, and in others is not, especially most

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1 recently in a Polk County. We have found out that we
2 had to get a waiver for an applicant for public
3 safety, because they could not meet the regional plan
4 requirements, and they had -- I believe, went about
5 one-half mile beyond their three mile jurisdiction --
6 beyond three mile jurisdiction.

7 So -- and they are determined to be a
8 rural area in Polk County. So three miles for rural
9 and five miles for suburb may create confusion, and I
10 don't know if you are going to base your idea on what
11 the Federal government decides what rural and nonrural
12 areas are.

13 It would be best if we can make it uniform
14 for everybody. Maybe five miles would be better than
15 three, because we have found also that other
16 applicants have requested to array beyond the three
17 mile jurisdiction in the regional plan.

18 CHAIRMAN NASH: I guess I would have a
19 question on your statement, you know, that they need a
20 waiver, because as I understand the rules now, while
21 that certainly is a design criteria, it's not a "thou
22 shalt not" exceed type of statement. So what is being
23 waived, because certainly --

24 MR. SALIBA: Well, we in the state, the

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1 state committee, regional committee, enforces the plan
2 to the tee, and we will not allow any state agency or
3 public safety agency to go beyond the three mile
4 jurisdiction unless they show a definite need and
5 after extensive engineering.

6 Then we will look into affording them a
7 waiver. Otherwise, they would have to abide by the
8 plan.

9 MR. SCHLIEMAN: That's a waiver of the
10 regional plan?

11 MR. SALIBA: Yes. Yes, and just because
12 it's an FCC rule, enforced rule, and then we submit
13 that waiver along with the application to the
14 certified public coordinator.

15 CHAIRMAN NASH: And again, I guess I sort
16 of have questions on that, because in the design of a
17 radio system it's virtually impossible to design a
18 system so it has exactly 40 dBu at a certain randomly,
19 if you will, drawn line across a map.

20 So, certainly, on the region 5s and 6s
21 that I am familiar with in California, our review
22 process looks at it from the standpoint have you made
23 a reasonable effort to minimize your coverage to your
24 jurisdictional effort, rather than a hard statement

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1 that we are going to look right along -- you know, all
2 the way along your boundary and measure your signal
3 level. So --

4 MR. SALIBA: Well, sometimes you can't
5 really help it, because if I was along the border of
6 two jurisdictions, at least two jurisdictions, and
7 then you can't do much about it, and this is --

8 CHAIRMAN NASH: I guess that is my entire
9 point, you know, is that reality is to draw a -- Take
10 the city of Tallahassee and go three miles beyond
11 that, and then to try to design a radio system that
12 provides 40 dBu along that line that is, if you will,
13 arbitrarily drawn across a map is virtually impossible
14 to do, and as a system designer all you could ask is
15 that you make a reasonable effort through the use of
16 directional antennas' down-tilt, etcetera, to try to
17 conform to that, but with the recognition that it's
18 not possible to conform exactly and, therefore, you
19 will conceivably exceed it in some places and maybe
20 not reach it in others.

21 MR. SALIBA: Are you suggesting that they
22 should be adding extra tower sites, because of what
23 you just said?

24 CHAIRMAN NASH: No. What I am saying is

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1 that the statement -- and it gets back to the reason
2 of keeping the soft statement of "should" rather than
3 "shall."

4 MR. SALIBA: Well, then that will -- you
5 are doing a broader idea for everybody to go beyond
6 what you are just asking, three or five miles. So
7 it's not "shall." Then everybody would prefer to go
8 15, 10. Who cares? But if it's "shall," then they
9 should stick to it, and that's where we really need to
10 be very concise.

11 If we are going to leave it "should," then
12 we might as well not include that, but if it's
13 "shall," then we should include it in the laws.

14 CHAIRMAN NASH: Well, again, I guess I --
15 "Shall" just is not possible.

16 MR. SCHLIEMAN: I think that the issue
17 here is that this is a recommendation for the regional
18 planning committees to find -- to deal with, and that
19 as a recommendation it would be a "should."

20 The purpose of regional planning
21 committees is to accommodate what local needs exist,
22 and so it sounds like maybe your concern is with the
23 regional planning committee.

24 MR. SALIBA: No. I am a subregion

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1 chairman of the Region 9 planning committee, and my
2 department reviews the technical information on each
3 application. As an experienced member of that
4 committee and the review committee of the
5 applications, I have a big concern, because we raise
6 that issue on a daily basis in the state of Florida.

7 MR. SCHLIEMAN: The fact that an applicant
8 makes a request to have, for the sake of argument, 50
9 miles beyond their jurisdiction is --

10 MR. SALIBA: It's been about six, six and
11 a half at the max. I have found out one application
12 at 7.2 miles, and the reason, they wanted to implement
13 an in-building coverage. They did not have enough
14 funds to add more tower sites. The site location was
15 about three miles from two other jurisdictions,
16 multiple levels, also the engineering company behind
17 the applicant.

18 We worked with Motorola and the applicant,
19 and we tried to make good the situation. We got them
20 a waiver at about five and a half miles. It was an
21 ongoing process to really enforce the law and also
22 help the applicant to get what they need. Adding an
23 extra tower site to enhance the in-building coverage
24 was not reasonable.

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1 MR. SCHLIEMAN: The cost issue of
2 communication systems that have to operate under
3 today's channel usage guidelines is different from the
4 old days where the highest power and the highest tower
5 and the highest mountain -- you don't have mountains,
6 but others do -- you know, that worked fine 20 years
7 ago, but nowadays we are painfully aware that there
8 aren't enough frequencies available for everybody to
9 do everything the way you used to 20 years ago.

10 So, therefore, it may cost more to build a
11 system that adheres to these more stringent standards
12 for channel reuse. That's really what that amounts
13 to.

14 MR. SALIBA: That is true. I agree with
15 you, and I am not disagreeing at all. However, we
16 have to also keep those public safety agencies in mind
17 when we are creating laws. You can't just take
18 anything, because that's what somebody wanted. We
19 need to give them more, especially when others are
20 being put on the line to review and mitigate
21 situations on a daily basis.

22 MR. SCHLIEMAN: Again, these are
23 recommendations to regional planning committees who
24 will in their infinite wisdom decide what they want to

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1 put in the plan.

2 MR. SALIBA: Okay. Thanks.

3 SGT. POWELL: I'm just going to say I
4 think it's incumbent upon the regions as they review
5 these guidelines to decide what is appropriate for
6 their region. And, hopefully, when they are looking
7 at it, they are looking at each individual application
8 and determining what that region can live with, with
9 regard to that particular implementation, considering
10 interference to neighbors and everything else, and is
11 it going to fit.

12 I mean, certainly, if that interference
13 was out over the Atlantic Ocean or the Gulf, it would
14 be a lot different than if it's going to prevent reuse
15 of that channel.

16 MR. SALIBA: Quite frankly, I don't like
17 to leave that up to the region committee, because they
18 are using their discretion to accept sometimes and
19 sometimes deny applications, and they have such power
20 that, if you are friend of the committee or a
21 committee member, then you get what you want and, if
22 you are not, you don't. And it's happening, and I
23 don't like it.

24 SGT. POWELL: We just had that discussion

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1 earlier, didn't we, Jean, that it's up to the members
2 of the committee to resolve that problem. It's not up
3 to the -- It's not in the rules, and it's a
4 recommendation, and the committee needs to deal with
5 that. It sounds like more of a political problem than
6 an enforcement problem.

7 MR. SALIBA: It may be political, but then
8 you have to afford equality to everybody within a
9 certain region, and in Florida it's happening, and I
10 don't like it, and I have also raised my concern to
11 the Chairman.

12 MR. DEVINE: Just on that note -- Steve
13 Devine, State of Missouri. Our committee in Missouri
14 is open. It's open to everybody, and it's open to
15 everybody all the time. So everybody has the ability
16 to come and express their viewpoints, and we strive
17 for consensus like most other groups. So --

18 CHAIRMAN NASH: Ernie?

19 MR. HOFMEISTER: Ernie Hofmeister, M/A-
20 COM.

21 I'd just like to comment, I think, in
22 support that the discussion here -- that the zone is a
23 real challenge, and I'm speaking from the point of
24 view of system design. As requirements have escalated

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1 for more in-building coverage in urban areas, it's
2 created a real challenge which does reflect itself in
3 challenging system designs and more cost.

4 I realize times have changed, but to the
5 extent -- Certainly, we would support the intent of
6 some change like this, but depending on how it's
7 worded or put into place, certainly, it would seem to
8 be appropriate from our point of view as a system
9 designer.

10 We did participate in the TIA, and
11 certainly support Bernie Olson's report that's been
12 placed here and which is the basis for this
13 recommendation.

14 CHAIRMAN NASH: I guess I'm in somewhat of
15 a dilemma here. Some of the argument I am hearing for
16 saying five miles is because we need to increase the
17 signal level within the true jurisdictional boundary,
18 which starts to get back to the original question of,
19 well, should we be increasing the signal level that we
20 design our systems for.

21 We said, no, we don't want to do that. We
22 don't want to go from 40 to 50, because that has
23 implications. We want to stay with 40, and now I'm
24 sort of hearing people say, but, yeah, but we want to

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1 move the 40 line further out so that, in fact, we do
2 increase it inside.

3 So I guess I'm getting a little confused
4 as to what are we really trying to say here, and again
5 I thought we were trying to avoid saying, you know,
6 you should design for 50.

7 MR. SCHLIEMAN: Glen, if I could just
8 interject before Dave speaks. Also in that TIA paper,
9 and something that we can agree with in the analyses
10 that we have done in New York State, it's usually from
11 40 to 50, and it's good for a three-times -- you know,
12 just in round numbers, a three-times increase in
13 number of sites to get that level of coverage
14 throughout the service area at the reliability that
15 public safety requires.

16 I think that's an entirely different issue
17 from whether the 40 dBm line is three miles or five
18 miles beyond the jurisdictional boundary.

19 CHAIRMAN NASH: Okay, but I guess, just to
20 be a devil's advocate here, you know, if you are going
21 to move the operational area out maybe five miles or
22 ten miles or 50 miles, that also requires additional
23 sites, you know.

24 MR. SCHLIEMAN: I didn't say that. I said

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1 three versus five miles, depending on the urban versus
2 suburban/rural area. I don't want to make it sound
3 worse than it is.

4 CHAIRMAN NASH: Okay.

5 MR. SCHLIEMAN: And it all has to do with
6 tower placement and all those factors.

7 CHAIRMAN NASH: But, nonetheless, if the
8 objective is to increase the signal level in order to
9 get building penetration, that's going to require
10 additional sites, whether you define it as being
11 because I want 50 dBm in my jurisdictional area or you
12 define it as I'm doing it in order to provide 40 at
13 the five-mile so that I can get 50 inside.

14 I guess I don't see the difference in it
15 from -- If the end philosophy is to increase the
16 signal level, increasing the signal level is
17 increasing the signal level.

18 David?

19 MR. EIERMAN: David Eierman, Motorola.

20 The three to five mile issue is sort of a
21 relative issue, whereas the 40 dBm, 50 dBm was sort of
22 a fixed issue. So whether you define the regulatory
23 contour as 40 dBm or 50 dBm, the three to five miles
24 is relative to that.

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1 So if you decide you are going to design
2 everything to 50, you still need three miles in
3 rural/suburban and five miles in urban in order to get
4 that signal strength at the jurisdiction at a certain
5 reliability relative to the noise floor.

6 I mean, the assumption of designing a 40
7 dBm versus 50 is an assumption of what the noise floor
8 level is. So the three to five -- you know, whatever
9 the regulatory contour you guys decide on, the three
10 to five is relative and it doesn't matter what the
11 starting regulatory contour is.

12 CHAIRMAN NASH: Okay. Let's try to get
13 back to the question. We have said here
14 jurisdictional area plus three. I have heard one
15 suggestion that we change that to be jurisdictional
16 plus five, and a second suggestion that we use
17 jurisdictional plus three in rural and suburban and we
18 use plus five in urban.

19 Is there a consensus as to three, five or
20 a combination? Without taking a vote, how many like
21 three? How many like five? How many like the
22 combination?

23 Okay, I seem to see a consensus then for
24 modifying this to say three, jurisdictional plus three

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1 in rural and suburban areas, and jurisdictional plus
2 five in urban areas. Can I assume consensus there?

3 MR. SCHLIEMAN: Yes.

4 CHAIRMAN NASH: We have consensus? Sean?

5 MR. O'HARA: Sean O'Hara, Syracuse
6 Research Corporation.

7 I think it begs the question of the
8 definition of rural, urban and suburban. What about
9 three to five based upon the discretion of the
10 regional planning committee's assessment of the
11 individual county's needs?

12 MR. SCHLIEMAN: How about if it was three
13 for rural/suburban and five for urban at the
14 discretion of the regional planning committee?

15 MR. O'HARA: Well, we don't want to get in
16 a situation where we have to include a definition of
17 what's the break points for -- You know, I've run into
18 a similar issue with the packing program. You know, I
19 let the program run from between three to five miles
20 based upon those things, but there is no definition
21 for those things. They are relative to individual
22 county's needs.

23 CHAIRMAN NASH: Understood, and certainly,
24 they are subject to interpretation. I have heard one

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1 suggestion that we allow the regional planning
2 committees to decide as to where the split is. I
3 would suggest another alternative is the FCC rules
4 does include, if you will, the 50 metropolitan areas
5 defined by the MSAs.

6 We could use the top 50, the top 10, the
7 top 100, the top -- pick a number, if you will, as a
8 definition of what urban is. Again, open to
9 discussion and suggestion. Yes?

10 MR. SALIBA: Why can't we make it a band
11 between three to five miles in urban and suburban and
12 in between, just three to five miles, and let the
13 design -- You are given more leeway for the design
14 companies to really work out their coverage, and
15 specifically when you are nearby other jurisdiction
16 boundaries.

17 CHAIRMAN NASH: Sean?

18 MR. O'HARA: I think, instead of going to
19 the definition that you talked about, if you look at
20 the definition in terms of population density, it
21 usually is a better metric for the degree of in-
22 building coverage requirements in terms of population
23 per square mile.

24 CHAIRMAN NASH: Any suggestion on what

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1 that number should be, if we are going to try to use
2 that as the definition?

3 MR. SCHLIEMAN: Say it again? What did
4 you use for a break point? Sean, you will have to use
5 the microphone.

6 MR. O'HARA: It's Sean O'Hara, Syracuse
7 Research Corporation.

8 Being in a somewhat difficult position in
9 the packing plan to try to come up with methodologies
10 that are equally applicable to everybody across the
11 country, I set a somewhat arbitrary break point of the
12 top quartile of the country in terms of population
13 density per county as the break point to switch
14 between three to five miles.

15 CHAIRMAN NASH: And again, just playing
16 devil's advocate here, you know, I would tend to argue
17 that the area that has the -- if you are going to go
18 strictly by county, there certainly are many counties
19 which are both very urban and very rural at the same
20 time.

21 To try to bring it down a little closer, I
22 think you run the danger of getting into situations
23 where the area in which you need the greatest building
24 penetration is high rise, which tend to be offices,

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1 which tend to not be reflected in population figures
2 because those people live elsewhere, you know. So I
3 think population is difficult to go by for that
4 reason.

5 MR. SCHLIEMAN: I think Manhattan is a
6 good example of that. Remember, Manhattan was below
7 Queens and Kings and, I think, even Richmond County.

8 MR. O'HARA: Yes, but you will find that
9 all the major urban centers in the country easily fall
10 within the top quartile in terms of population density
11 of the country, because most of the people tend to
12 live in the urban centers.

13 CHAIRMAN NASH: Now again, the intent here
14 is to get building penetration. Is it better to
15 define urban in terms of, you know, areas that have
16 average building heights in excess of five floors as
17 opposed to areas that have average building heights of
18 one or two stories?

19 MR. O'HARA: This is the reason I don't
20 want to get into definitions. I had to, because I had
21 to come up with something that was somewhat quasi-
22 intelligent to make these decisions. But each
23 individual county is going to make their own decision
24 as to what degree of in-building coverage they are

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1 going to need.

2 Because of that, I think you need to look
3 at that. You need information from each individual
4 agency or each individual jurisdiction in order to
5 accurately make that assessment. So that's why I
6 wanted to base this at the discretion of the regional
7 planning committee.

8 SGT. POWELL: John Powell. I want to
9 support that. I think that it is an individual issue
10 with each system going in, and that's why we have
11 regional planning committees. They are the ones that
12 need to make that decision on a case by case basis.

13 CHAIRMAN NASH: Okay. So I'm hearing the
14 suggestion that we leave the definition of the
15 rural/suburban versus urban to the discretion of the
16 regional planning committees. Do we have consensus on
17 that issue? Yes

18 MR. SALIBA: I think you should -- Jean-
19 Pierre Saliba, state of Florida. If you leave that
20 issue up to the regional planning committee, there is
21 no funding for that committee to do any surveys or
22 rely on good data to be able to decide which one is
23 urban and which one is not. I doubt that you would
24 reconsider urban and suburban definitions even at the

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1 Federal committee.

2 It certainly is related to funding issues.

3 MR. SCHLIEMAN: Would you consider that
4 using the top quartile of county population in the
5 national census to be the break point as a reasonable
6 suggestion to the regional planning committees?

7 MR. SALIBA: Yes, that's -- Since it's a
8 Federally accepted type of collecting data, but to
9 leave it at the region committee to do so is
10 inappropriate. I don't think they have the real power
11 to do so, especially the funding situation.

12 SGT. POWELL: John Powell, University of
13 California. I don't know how your region works, but
14 the ones I am familiar with require the applicants to
15 bring that data in as part of their package and their
16 justification.

17 There's not a cost to the regional
18 planning committee to do that. Again, going back,
19 it's an individual basis, and I was going to suggest
20 as a follow-on to my last comment that there needs to
21 be some text. You say three to five miles, and then
22 you need to give the regional planning committees some
23 additional guidance in why we are giving them that
24 range and why it would be appropriate in an urban

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1 setting.

2 You could then say urban without defining
3 it. Say an urban highrise situation which needs
4 building penetration, that it's going to slop over an
5 additional distance and that it will be appropriate to
6 give them closer to five miles; whereas, a rural area,
7 it would be less than three miles.

8 You put it in some text, and you leave it
9 to the regional planning committees to decide how they
10 are going to do that. It's up to them to collect the
11 data in whatever format they need to collect the data,
12 to make that decision, and the funding issues are up
13 to them and how they -- You know, if somebody has got
14 to pay to do that, in my personal opinion, that's a
15 licensee's -- or applicant's responsibility to do
16 that. That's part of the package they have to
17 provide.

18 That's not the responsibility of the
19 regional planning committee. They take the data that
20 they get, and they analyze it, and they make their
21 decision based upon that, and that is the way every
22 region that I am aware of works.

23 MR. SALIBA: Well, I think you should be a
24 little friendlier with your applicants. Asking all

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1 this data to be included in an application is
2 overwhelming to them. From a reviewer standpoint, I
3 can tell you it takes three to six months for a
4 regional application in the state of Florida to be
5 completed for review, even though we have simplified
6 our application process.

7 Putting in a list to follow, the
8 applicants still do not know what they need to
9 provide. They are not savvy in the matter of
10 providing information.

11 It took one applicant six months to
12 provide all the licenses in the 512 and less for an
13 800 megahertz system before they can get their license
14 and operate. They were operating illegally for four
15 months.

16 So we need to make sure that they get
17 their application in process, simplified, and not add
18 more stuff -- more information that is really
19 irrelevant, that we can do away with. I mean, I can
20 tell you, the stack is about two inches thick for a
21 regional application in the state of Florida, minimum,
22 for a very simple system.

23 So we'll need to minimize that stuff. if
24 the FCC can enforce it and give it up to the regional

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1 committee, it is going to be a hectic situation
2 anywhere in the nation to really be able to have the
3 public safety entities nationwide.

4 SGT. POWELL: Systems have gone beyond a
5 574 form. I would suggest that any 800 megahertz
6 system going in today is being provided by one of four
7 or five manufacturers, all of which have engineering
8 staffs fully capable of providing whatever supporting
9 documents are needed to satisfy the regional planning
10 committee, and that's the way it works.

11 You need that data to make a knowledgeable
12 decision and, if we don't do that, you end up with
13 having sloppy use of your spectrum.

14 MR. SCHLIEMAN: Could I suggest this
15 wording and go for a determination and consensus at
16 this time?

17 CHAIRMAN NASH: Let's hear his reply
18 comment. Then we'll try to move on. Go ahead.

19 MR. SALIBA: That is true. However, they
20 are paying for that information and that assistance
21 from those companies. So we need to also keep in mind
22 that they need to save that money and use it for the
23 public safety systems instead of paying for consulting
24 fees and other irrelevant costs to implement an 800

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1 system.

2 CHAIRMAN NASH: Bob, you have a
3 suggestion?

4 MR. SCHLIEMAN: Yes. I'd like to see if
5 we can agree on consensus for three miles for
6 rural/suburban and five miles for urban, and the
7 jurisdictional boundary is determined by the regional
8 planning committee with a top quartile of county
9 population in the national census would be the break
10 point, and that this be considered a recommendation.
11 Since we are using the term "should," I think that is
12 expected.

13 CHAIRMAN NASH: Are you suggesting then
14 that only the top quartile could qualify as urban?

15 MR. SCHLIEMAN: It's a suggestion. The
16 whole thing is a suggestion up to the regional
17 planning committee, and part of the suggestion is that
18 the top quartile of county population in the national
19 census would be the break point between urban and
20 suburban.

21 The regional planning committee would have
22 the discretion to modify that as appropriate to their
23 region or that portion of their region. We can't
24 characterize the building construction in every part

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1 of the county and try to make a national uniformity
2 out of it. It's not possible.

3 This is just a starting point, you know.
4 The regional planning committees have got a lot of
5 discretion which they have to appropriately use
6 according to what their situation is.

7 CHAIRMAN NASH: Okay. So what you're
8 saying: RPCs shall determine --

9 MR. SCHLIEMAN: It is recommended that
10 RPCs use three miles for suburban and urban -- I'm
11 sorry, rural and suburban and five miles for urban
12 beyond the jurisdictional boundary where the top
13 quartile of county population in the national census
14 would be the break point.

15 CHAIRMAN NASH: How about RPCs shall
16 determine whether an area falls within the
17 rural/suburban or the urban designation. The NCC
18 recommends that urban be limited to the top quartile.

19 MR. SCHLIEMAN: Yes. Well, that the five
20 miles be established. I don't think I want to
21 necessarily get into a discussion of what is an urban
22 area, what is a suburban area. Really, the break
23 point is between the three and the five.

24 SGT. POWELL: Let me go back to my -- John

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1 Powell -- go back to my earlier statement, though,
2 that I think that we need a little bit of additional
3 text in there as guidance for that reasoning. That
4 would be that the higher signal -- or the wider
5 coverage is a result of higher signal levels needed
6 for building penetration.

7 If you leave it at this, regional planning
8 committees that haven't read the document are going to
9 have no idea why this is this way. So you need
10 something in there to explain that to them.

11 CHAIRMAN NASH: Okay. I've got: RPCs
12 shall -- you know, modify that parenthetical to say
13 defined as being the jurisdictional area plus three
14 miles in rural/suburban areas or plus-five miles in
15 urban areas, and then add a statement: RPCs shall
16 determine whether an area falls within the
17 rural/suburban or the urban designation. The NCC
18 suggests the top quartile of MSAs be included within
19 the urban designation.

20 I then have a question as to what is meant
21 by quartile, and you get different -- You know, is
22 that based upon the top 50 as listed in the FCC rules,
23 the top 100, the top 1,000? Quartile is a relative
24 number based upon what you have included in the

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1 original list.

2 So I guess I have problems with the use of
3 the word quartile, because it is an undefined.

4 MR. SCHLIEMAN: I think it is generally
5 understood what it is.

6 CHAIRMAN NASH: Well, based upon how long
7 a list, Bob?

8 MR. SCHLIEMAN: The national census of
9 county populations.

10 CHAIRMAN NASH: I wouldn't have a problem
11 saying the top 100 or the top 50. I think saying the
12 top quartile, you then get into arguments about how
13 long the original list was to define what the top
14 quarter was. So --

15 MR. SCHLIEMAN: Is the --

16 CHAIRMAN NASH: Would you be comfortable
17 saying the top 100?

18 MR. SCHLIEMAN: Is the FCC's definition
19 based on cities?

20 CHAIRMAN NASH: Yes, it is. It's MSAs.

21 MR. WILHELM: It's urbanized areas.

22 CHAIRMAN NASH: Are we comfortable in
23 saying that the top 100 MSAs as defined in the rules
24 be included as urbanized areas?

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1 MR. WILHELM: No, actually, it's not MSAs.
2 It is urbanized areas.

3 CHAIRMAN NASH: Okay. Top 100? That's
4 what I'm trying to get down to.

5 MR. WILHELM: Twenty-five percent of the
6 county population.

7 CHAIRMAN NASH: What list?

8 MR. WILHELM: The national census of
9 county populations.

10 CHAIRMAN NASH: So the top 25 percent of
11 counties.

12 MR. WILHELM: Yeah. County population of
13 the national census.

14 CHAIRMAN NASH: Okay. I'm just trying to
15 get -- I have a problem with the use of the word
16 quartile without defining what the list is you're
17 trying to get a quartile of.

18 MR. SCHLIEMAN: No, I said several times
19 county population in the national census.

20 CHAIRMAN NASH: Is everyone comfortable
21 with using 25 percent of the counties in the country?

22 MR. SCHLIEMAN: County population in the
23 national census.

24 CHAIRMAN NASH: Well, but that comes down

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1 to 25 percent of the counties in the U.S. are
2 urbanized under this definition. Are we comfortable
3 with that?

4 MR. O'HARA: John, that's what you used to
5 cap that. Is that right? In terms of population
6 density?

7 CHAIRMAN NASH: Okay. The top quartile of
8 counties based upon population density in the 2000
9 census. Okay, so RPCs shall determine whether an area
10 falls within the rural/suburban or the urban
11 designation. The NCC suggests that the top quartile
12 of counties based on population density in the 2000
13 census be the initial break point for urban
14 designation.

15 MR. SCHLIEMAN: Do you need to specify
16 2000 specifically? Are you giving this a ten-year
17 life? I mean, is it necessary?

18 CHAIRMAN NASH: On the latest census? I
19 don't care. Okay, the latest census be the --

20 MR. SCHLIEMAN: We could add an
21 informational statement: The wider coverage buffer is
22 typically required to accommodated in-building
23 coverage in urban construction environments.
24 Therefore, it is not intended for the Mayor to be able

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1 to drive to the state capital, or the police.

2 CHAIRMAN NASH: Okay. So the wider buffer
3 area is required to provide the higher signal levels
4 necessary for in-building coverage within urbanized
5 areas -- just as a footnote-type statement.

6 MR. SCHLIEMAN: Either way.

7 CHAIRMAN NASH: Okay. So RPCs shall
8 determine whether an area falls within the
9 rural/suburban or the urban designation. The NCC
10 suggests that the top quartile of counties based upon
11 population density in the latest census be the break
12 point for urban designation. The wider buffer area is
13 required to provide the higher signal levels necessary
14 for in-building coverage within urbanized areas. All
15 right, typically required to provide the higher signal
16 levels necessary for in-building coverage within
17 urbanized areas.

18 Does that meet with everyone's consensus?

19 Curt has a comment.

20 MR. KNIGHT: I'll just add I'll just add
21 to the controversy, I guess. Curt Knight, State of
22 Arizona.

23 First, I think we all need to remember
24 these are guidelines, not rules. They are not

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1 mandates, and I think maybe some of that confusion
2 still might exist, that these are just guidelines for
3 the RPCs.

4 Second of all -- and I think we all have
5 them, but I can think of several in Arizona where
6 you've got highly urbanized areas by this definition,
7 but there are pockets on the periphery of that area
8 that are very rural, and it would be a shame to
9 recommend through these guidelines that they build out
10 a system at the two to three times the cost or two to
11 three times the site, as Bob was using his rule of
12 thumb, just because of some guidelines, based on that
13 definition of county and urban.

14 CHAIRMAN NASH: I would agree with you
15 that these are only guidelines in the design of
16 system, and I think you are right. You know, there's
17 two ways to look at this, (a) as a not-to-exceed level
18 that an RPC might apply to a system that's considering
19 or an application that is considering this before it
20 and in saying that, at what I refer to as being an
21 arbitrary drawn across the sand in the countryside of
22 saying that you cannot exceed 40 dBm as this point, no
23 matter -- whatever you have to do in designing your
24 system so that you don't exceed 40 at this arbitrary

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1 point is not acceptable.

2 The other side, as Curt certainly points
3 out, is that applicants in designing their system, to
4 say that they have to have 40 at that point also is
5 not desirable. They may choose to have zero there,
6 because the only people out at that particular point -
7 - and certainly Arizona would be a good example -- is
8 the jackrabbits that go hopping across it. And the
9 sand moves, right?

10 MR. SCHLIEMAN: Right. That's why it's a
11 line in the sand.

12 CHAIRMAN NASH: So again, the reason that
13 we have used words in here of "should" rather than
14 "shall" is exactly that point, you know, is that these
15 are guidelines that people should apply reasonable
16 decisions to, rather than being hard black and white
17 numbers that you have to adhere to. So -- You want
18 to come up to the microphone?

19 MR. SALIBA: Jean-Pierre Saliba, State of
20 Florida.

21 That's where the concern comes about is
22 what is reasonable for someone may not be reasonable
23 for others, and this is -- Also, I will remind you
24 that what we face on a daily basis is reasonable for

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1 me but not reasonable for the region committee and the
2 reviewing committee for the region.

3 CHAIRMAN NASH: I understand your comment,
4 and I guess an answer to that is I think perhaps the
5 region in Florida needs to do some serious soul
6 searching about how they operate and what the rules
7 are.

8 Again, from an engineering design
9 standpoint, I think a lot of people out there would
10 agree, you know, to draw a line across the floor here
11 and say that you have to design a radio system to
12 provide exactly a specific signal level on that line
13 and nothing beyond it is not possible.

14 Design of radio systems is not a black and
15 white world. There is the reality of site placement.

16 There is the reality of propagation. There are just
17 too many variables to say that we can draw a line
18 anywhere in this country and design a radio system to
19 provide coverage exactly to that line and nothing
20 beyond it. It is just not possible.

21 So if a regional planning area wants to
22 try to set that as the rules, I think they need to do
23 some serious thinking about the reality of radio
24 design.

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1 MR. SCHLIEMAN: On my second comment
2 regarding the use of the word "should" in the last
3 sentence, I think if the user is going to design a
4 system for 50 dBm, one, he is going to spend a lot
5 more money, and in so doing, he can take extra special
6 pains to not increase his interference contours by
7 judicious use of antennae parameters, directional,
8 down-tilt, etcetera, so as not to exacerbate the
9 frequency reuse problem.

10 So I don't think it should be "should."

11 CHAIRMAN NASH: There again, I guess --
12 You are suggesting that that should be "shall"?

13 MR. SCHLIEMAN: I would suggest that
14 reusers are not to increase the signal levels outside
15 of their operational area so as to increase
16 interference to co-channel and adjacent channel users.

17 In other words, the 25 and the 40 that
18 would have been achieved with the 40 dBm at three or
19 five, according to the criteria, should still apply,
20 even if they are using 50 at their jurisdictional plus
21 three or five boundary. That's what I'm saying.

22 CHAIRMAN NASH: Again, I guess I have a
23 problem with a hard statement like that (a) in a
24 recommendation, as John just said. But (b) is that

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1 again, you know, the reality of system design --

2 MR. SCHLIEMAN; It's a cost trade-off.

3 CHAIRMAN NASH: Well, certainly. But I
4 guess -- and again, in a statement like this -- Let's
5 take the situation where your jurisdiction is along a
6 seacoast. So you put in a site that provides much
7 more signal to the buildings that are on land and
8 points out to sea, and nobody cares that you go five
9 or ten or 15 miles out to sea, because there is nobody
10 out there.

11 Nonetheless, your jurisdictional area ends
12 at the seacoast, and three miles beyond your
13 jurisdictional area is three miles, whether it's ocean
14 or not, and so that, to put a hard statement in here
15 that you can't increase your signal level three miles
16 offshore, I don't think, is a reasonable statement.
17 Who cares if --

18 MR. SCHLIEMAN; I can express some
19 comments on that. The jurisdictional area, first off,
20 at least in our area, is two, as far as the state
21 boundary is concerned. If we are engaged in
22 contractual agreements with the Federal government,
23 it's ten or 12, and if you are in New Jersey, you are
24 going to appear in Long Island. Over water

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1 propagation is great.

2 Recent stories about DPV from Boston,
3 Mass., getting into Camden, New Jersey, I think it
4 was, speak to that issue. The people that are in
5 Delaware may not have a problem, and again I think
6 that is a discretionary issue on the part of the
7 regional planning committees.

8 The discussion that I am looking at here
9 is with respect to frequency reuse. If there is no
10 frequency reuse issue, certainly, it's not a
11 consideration. But where frequency reuse is the
12 predominant issue within the country, I think it is
13 extremely important that we optimize frequency reuse
14 or not degrade the optimization of frequency reuse by
15 an increase in signal from 40 to 50 having an adverse
16 affect on the interference contours between systems.

17 CHAIRMAN NASH: So what you are really
18 saying then is take out part of that sentence so that
19 it reads: In doing so, however, users shall not cause
20 additional interference to co- and adjacent channel
21 users.

22 MR. SCHLIEMAN: Okay.

23 CHAIRMAN NASH: Is that what you we want
24 to say? And again, use of a hard "shall" in a

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1 recommendation, if you will, it might be an oxymoron.

2 MR. SCHLIEMAN: I think the intent is
3 pretty clear, though.

4 CHAIRMAN NASH: Well, but isn't "should"
5 almost saying your best efforts, but -- Okay. In
6 doing so, however, users shall not cause additional
7 interference to co- and adjacent channels users.

8 MR. SCHLIEMAN: Yes.

9 CHAIRMAN NASH: Is that agreeable? I'm
10 seeing a number of head nods out there. Okay. Any
11 other changes to this statement? Seeing none, I will
12 say that we now have new concurrence on this
13 statement. I'll try to get an updated version to the
14 Steering Committee for their review and approval. It
15 won't be tomorrow. We can discuss the changes.

16 Okay. The only other item of business
17 that I had to bring up is more of an information item.

18 As many of you will recall, and it is reflected in
19 the rules, this committee had recommended the
20 adoption, and the FCC did follow through, of TIA, the
21 102 series common interface for the operations on the
22 interoperability channels.

23 I became aware at the last TIA meeting
24 that TIA is considering a revision to the document

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1 that was approved by this committee. I believe it is
2 Revision K, which adds some information regarding
3 automatic frequency control which is necessary in
4 order to comply with other rules that the Commission
5 has established relative to those items.

6 So I believe TIA is in the process of
7 balloting that latest revision. Hopefully, that will
8 be completed in time for our next meeting for us to
9 forward a recommendation that the Commission date the
10 rules to incorporate the latest version of the common
11 area interface as opposed to the older version which
12 currently appears in the rules.

13 This comes down to an issue that we
14 discussed before of the Commission rules refer to
15 specific documents and don't necessarily keep up to
16 date with revisions, and apparently don't allow us to
17 say the latest revision of, because that gets into
18 concerns of, you know, if a manufacturer is designing
19 equipment to one version and then a revision comes
20 out, they have to check all their equipment. It may
21 not be reasonable.

22 So I think you do have to sort of tie it
23 down. So anyway, be aware, and we will bring that
24 forward at the next meeting. Steve?

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1 MR. DEVINE: Steve Devine, State of
2 Missouri. Glen, at the last meeting we discussed wide
3 band channel loading and kind of came up with a number
4 based on some things we know are reality in the world.

5 Has there been anymore input or any pros, cons,
6 disapproval of that? Do we still stand at 180, at
7 least based on the rudimentary arithmetic we derived
8 in September? Do you have anything more to add?

9 CHAIRMAN NASH: I haven't heard any
10 comments from anyone, although I understand that my e-
11 mail is -- I did have an e-mail address change that
12 occurred about six months or a year ago. Apparently,
13 people are still using the old address, and they
14 finally shut off the old address. So I may not have
15 been receiving any comments.

16 So if anybody else is aware of comments
17 that have been made about wide band loading standards
18 -- but I don't think that's gone -- there's been any
19 comments.

20 Are we ready to accept the 180 users per
21 50 kilohertz channel that I sort of came up with as a
22 thumbnail calculation at the last meeting? Any
23 comments, consensus, that that is a good number?
24 Sean?

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1 MR. O'HARA: Just for the heck of it --
2 Sean O'Hara. Just for the heck of it, before the next
3 meeting why don't I run through the earlier
4 requirements that were projected at PSWAC in terms of
5 what would be applicable toward these wide band
6 channels and look at the channel loading criteria, try
7 to find a suitable model, and I'll communicate that to
8 you in the meantime before the next meeting, and maybe
9 we can revisit that.

10 CHAIRMAN NASH: I think one of the other
11 things that we need to look at is that typically the
12 wider the channels are, the relative speed of the
13 channel goes up. So we might need to look at 180 at
14 50 and, rather than just doubling it for 100, adding a
15 little bit more to it, and likewise at 150.

16 So I would be very interested, Sean, at
17 seeing what you come up with.

18 MR. SCHLIEMAN: And doesn't it also depend
19 on the nature of the communications that we're putting
20 over it? You know, if it's video, near full motion
21 video, how many users are you going to have on it
22 while that's going on?

23 I mean, there's a whole lot of issues here
24 that need to be looked at.

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1 CHAIRMAN NASH: You're right. It's an
2 issue of -- You know, the bottom line becomes the
3 number of bits that you're trying to shove down the
4 pipeline. You know, if you have a channel that's
5 designed to handle 300 kilobits per second, if you
6 have 300 kilobits to send, it's going to take a
7 second. If you have 600, it's going to take two
8 seconds. You know, that's reality of --

9 MR. SCHLIEMAN: But it depends on the
10 nature of the traffic. If you are sending NYSPIN
11 messages or whatever you call them in California, you
12 know, you've got an average message size and so on and
13 so forth, but if you are going to be using this for a
14 variety of purposes ranging all the way from small
15 message -- relatively small messages up to full motion
16 video, you're not going to have the same relationship
17 of users to band width.

18 CHAIRMAN NASH: Well, we all understand
19 that. So I guess --

20 MR. SCHLIEMAN: Well, I haven't heard it
21 reflected in terms of how the users per channel would
22 -- or users per band width would relate to that.

23 CHAIRMAN NASH: Well, but the question
24 goes back and the problem that, certainly, the

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1 southern California region ran into was based on users
2 coming in and saying, well, I've got three 25
3 kilohertz-wide channels that I'm doing MDTs on. So I
4 need three 150 kilohertz-wide channels to do my future
5 data applications, and they ended up with a request
6 for some 200-plus 150 kilohertz-wide data channels,
7 which greatly exceeded the availability.

8 So how do you decide what people get? So
9 I'm certainly open to Sean's suggestion that we go
10 back to PSWAC and try to estimate the number of bits
11 per second that the average user is going to use on a
12 channel, and use that as a way of coming up with some
13 sort of loading.

14 I did a thumbnail calculation at the last
15 meeting and, quite frankly, at the moment I don't
16 remember how I did that. But what I used is the
17 numbers, but we arrived at 180 as a number, just to
18 pick something.

19 As you say, it's dependent upon whether
20 you are sending short data messages or you are sending
21 full motion video is going to completely change the
22 impact of what that number is. So -- Sean?

23 MR. O'HARA: I agree. And then I think,
24 going along with what Bob said, we will certainly take

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1 a very detailed look at this before the next meeting.

2 We will have some numbers. But the assumptions that
3 are behind those numbers, we will communicate to you
4 as soon as possible.

5 So if we are off base in terms of -- We
6 have to look at such things as like probability of
7 certain types of message versus arrival rates and
8 those kinds of things. I think that those numbers are
9 out there, but I'm going to need help from the public
10 safety community, particularly the ones that are
11 looking forward to these new applications, as to how
12 realistic that is going to be in terms of their
13 operational use.

14 MR. SCHLIEMAN: In that regard, Glen, do
15 you have or can you get from the southern California
16 folks the application characteristics that they were
17 considering with that kind of detail, that Sean was
18 just describing?

19 CHAIRMAN NASH: Unfortunately, what I know
20 of those requests in southern California is nobody
21 knew what they were going to use the channels for.
22 Therefore, they strictly threw out -- said, well, if I
23 have three, I need three, with no basis behind how
24 they arrived at that. And that's part of our problem.

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1 MR. SCHLIEMAN: Are they doing in-car
2 video and things like that?

3 CHAIRMAN NASH: No. They are not doing
4 anything. They don't know what they are going to do.

5 MR. SCHLIEMAN: What are their current
6 mobile data applications?

7 CHAIRMAN NASH: Short messaging. They are
8 running, you know, 19.2 today. So they figure that at
9 384 on a 150 kilohertz-wide channel, they --

10 MR. SCHLIEMAN: They can accommodate more
11 activity.

12 CHAIRMAN NASH: That's right.

13 MR. SCHLIEMAN: Okay. So they have
14 message traffic information available from their
15 system as to what they are doing right now.

16 CHAIRMAN NASH: And they are fully
17 satisfied with a 19.2 channel.

18 MR. SCHLIEMAN: And how many channels they
19 are using for how many users, and all that stuff? We
20 could get some kind of a clue from them on what they
21 are doing now, and you say they are not doing video
22 now, not even aeronautical video? Is that just the
23 commercial news people that do aeronautical videos?

24 SGT. POWELL: The whole issue here is that

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1 we were looking at these wide band channels for other
2 than short messaging uses. I think that is why it is
3 really important for Sean to go back to the PSWAC
4 report, look at what some of those uses were
5 anticipated to be, what the message lengths were
6 anticipated to be, and extrapolate that to these
7 channels.

8 If people are going to use these for short
9 messaging, you stay on your 19.2. It's working fine
10 now. You don't qualify for these. These are for new
11 technology. The regions are really looking for some
12 guidance in this area, one of the big issues being
13 channel loading.

14 We need to do that, but we need to do it
15 based on the appropriate uses for those channels, not
16 something that could be satisfied with narrower
17 channels, if they are happy with what they are getting
18 today.

19 There needs to be an appropriate
20 application, video being one of them, certainly. And
21 in that case, maybe one transmitter on that channel is
22 appropriate, because that's all that it will satisfy
23 at that time; but we need perhaps, Sean, a range of
24 different -- You know, if you are going to use it for

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1 this, this is what you can anticipate. If you're
2 going to use it for this, this is what you can
3 anticipate.

4 MR. O'HARA: Sean O'Hara again. Yeah, I
5 absolutely agree. I mean, we can't base anything on
6 current operations, because, hopefully, we are going
7 to go beyond -- way beyond current operations, now
8 that we have new capabilities.

9 Just a further point: In terms of the 384
10 kilobits per second, whatever number you pick, you
11 know, one of the things we are going to have to look
12 at is an actual data payload throughput that is
13 probably more like on the order of a third of that.

14 CHAIRMAN NASH: Go ahead, David.

15 MR. EIERMAN: David Eierman, Motorola. I
16 basically just want to support what Sean said, that
17 you got to define a user profile of, you know, average
18 and peak loading, and then compare that against the
19 capability of the pipe.

20 I'm not so sure we shouldn't go back and
21 look at the narrow band, you know, 12 1/5, 25 type
22 issue at the same time. You know, we've picked
23 arbitrary there. I guaranty we picked arbitrary
24 numbers. They were NPSPAC numbers based on 15-year-

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1 old profiles.

2 So I'm not so sure we shouldn't go back
3 and look at the narrow band as well as the wide band
4 and come up with more accurate numbers for both.

5 CHAIRMAN NASH: Wayne?

6 MR. LELAND: Wayne Leland, Motorola and
7 TIA.

8 Just PSWAC -- I'm trying to recall all
9 that went on in PSWAC. We did make -- Just some
10 comments. First of all, PSWAC came up with a
11 requirement for an additional 97 megahertz to
12 accomplish all this. So be careful trying to cram all
13 of that into 24 or 12 or whatever.

14 Secondly, I recall that there were a lot
15 of -- A lot of the assumptions, we couldn't tell
16 exactly what the applications would be, but we did
17 make some predictions on bits per hertz, and we made
18 some pretty aggressive predictions on improvements in
19 that capability.

20 We had a four times improvement built into
21 there over ten years of what was capable of being
22 going on. So those are part of the assumptions that
23 Sean and whoever else is working on this should relook
24 at, because sometimes I get the opinion that -- or the

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1 impression that people are saying here, well, you
2 know, we don't need as much as we said, because things
3 are improving.

4 Well, we predicted those improvements, and
5 I don't think we are all the way there yet. So there
6 are a lot of things, and video was a large portion of
7 it. I don't think the 24 megahertz -- It encompassed
8 some video, but I don't think it encompassed in the
9 PSWAC report a lot of full motion video, because that
10 eats it up.

11 So I think you got to look at all of those
12 kinds of things, and I guess bottom line is I don't
13 know how that is going to help on your loading number.

14 But it would be a good exercise to do.

15 CHAIRMAN NASH: As I recall the PSWAC, you
16 know, you're right. We came up with 97.5 megahertz
17 based upon estimates of what we thought data loading
18 was for video and high speed data and a number of
19 other things.

20 We did say that 25 megahertz was needed
21 immediately for the additional voice and low speed
22 data things that we were doing five years ago. We got
23 24, 12 of which was made as wide band channels, and
24 we've kind of seemed to have drifted from saying that,

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1 you know, whereas we say we need a 25 megahertz for
2 voice and low speed data -- in other words, 25
3 kilohertz type stuff -- to where we are now saying,
4 well, we got 12 for that and we got 12 for wide band,
5 and at the 72.5 megahertz of stuff that we said was
6 wide band applications, the video and everything else,
7 we are now trying to cram into the 12.

8 We're finding we're coming up short.
9 Surprise, surprise.

10 MR. DEVINE: Steve Devine, State of
11 Missouri. Glen, some of the values in the last NCC
12 meeting when you came up with the 180 users per 50
13 kilohertz channels was a 5 megabit throughput per
14 shift per user and an average throughput of 128
15 kilobits per second; and you got it down to bits per
16 second and multiplied it out, eight hour shift,
17 etcetera. So that plus some of the constants that we
18 know were where that derived from.

19 I went back and checked on some of our
20 CDPD applications in some areas of the state. We've
21 got a limit of 2.5 meg. a month, which is a 20-day
22 work period. So I think that's providing a lot of
23 room for growth and a lot of capability there that
24 currently is not being accessed. So I think it might

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1 not be the number, but I don't think it's completely
2 out of line.

3 SGT. POWELL: Just as a follow-up, last
4 week while we were in the SDR forum, I had an
5 opportunity to look at one of the applications that is
6 coming up down there now, and I think this is kind of
7 the future, the near future, of what we are going to
8 see.

9 That is that the typical driver's
10 licensing is now returning the photo that's on file at
11 Motor Vehicles for that individual. That adds a lot
12 of overhead to what used to be a very short import. I
13 shouldn't say overhead -- a lot of additional loading.

14 CHAIRMAN NASH: Steve, thank you for
15 reminding me where some of my numbers came from.
16 You're right. I think we did say, you know, 5
17 megabits per user per eight-hour shift. It was kind
18 of the starting point.

19 As Bob has pointed out, you know, at some
20 point you've got to get down to the number of bits you
21 are trying to transmit, and then you can make some
22 assumptions about how many bits per hertz or whatever
23 you are going to allow, and you come up with numbers.

24 Certainly, if anybody has any information

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1 that could help us refine what a reasonable number of
2 bits per user per shift or per month or per year or
3 per hour, per something, you know, that we can start
4 using -- because that really is the key number you
5 start with in arriving at how much band width you need
6 in order to transmit that information. Sean?

7 MR. O'HARA: Just one more thing here, as
8 long as I have the opinion of the forum available.

9 In terms of economic issues, we've done a
10 very detailed study on the narrow band channels
11 already in New York state, looking at the actual
12 throughput you can expect. Now we based those
13 throughput numbers on system design criteria.

14 The assumption was that we were going to
15 put the data transmitters at the same locations as the
16 voice transmitters. In other words, you are going to
17 support your data infrastructure and your voice
18 infrastructure together.

19 We looked at two different design levels.
20 We looked at systems design to DAQs of 3.0 and DAQs
21 of 3.4, and then we looked at the overall average
22 throughputs that you would get after error correction
23 at a faded channel for those two design cases.

24 Now what I need to know in this case is,

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1 is it a valid assumption to assume that these 50
2 kilohertz channels are also going to be sharing the
3 same voice infrastructure or do you think that there's
4 going to be additional infrastructure built out to
5 support that, because that has a tremendous effect on
6 the range and the data rates, the distribution of data
7 rates that you are going to expect. I'd love to hear
8 a comment from anybody here on that.

9 CHAIRMAN NASH: Again, you know, I think
10 we are in a portion of the learning curve that --
11 We're way at the bottom of it, and none of us have any
12 experience in designing systems. There's limited
13 experience through the greenhouse project in Pinellas
14 County as to what some of these systems might be used
15 for, how practical that is.

16 Much of what I've heard through TIA as far
17 as the modulation goes is, certainly, there is a
18 tradeoff between throughput and range and, as you try
19 to have greater range, you're going to have lesser
20 throughput on the system, and that becomes a design
21 criteria.

22 Are we going to try to, as Sean is saying,
23 limit ourselves to our existing sites? Are we only
24 going to have, as some people have suggested, maybe

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1 just hot spots that you drive through and get a quick
2 data update, and in other spots you have little or no
3 coverage?

4 I think we are at a point in our learning
5 curve, we don't have answers to those questions and,
6 therefore, from a personal viewpoint, quite frankly, I
7 look at this 12 megahertz of wide band data spectrum
8 as being, if you will, an experimental band that
9 public safety is going to be using over the next few
10 years to try to get itself up that learning curve in
11 understanding on what wide band systems can do, what
12 is practical, what is impractical, both from the
13 standpoint of uses of it and the practicality of
14 designing systems.

15 MR. DEVINE: Steve Devine, State of
16 Missouri.

17 I think it's more appropriate, we don't
18 have questions for the answers instead of answers for
19 the questions. I think it's the questions for the
20 answers, because the answers are there. We just don't
21 really have the proper applications in order to solve
22 our problems with it yet.

23 MR. O'HARA: Sean O'Hara again.

24 Well, I don't think -- We probably don't

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1 need to discuss this all day, but just to get out of
2 the gate, I would suggest that in most cases that you
3 would probably want to use these channels on your
4 voice infrastructure, only because the way that SAM is
5 set up, you will always get better data rates than
6 what you get on your narrow band data system by doing
7 that and, as you approach the sites, you are going to
8 get incredibly data rates.

9 So I think that's a pretty valid
10 assumption in terms of sheer economics. Not a lot of
11 people can -- If you could afford to build out
12 infrastructure to a very high degree for these wide
13 band things, then certainly, you know, that's going to
14 be a serious cost factor, and you might as well hang
15 your voice infrastructure on the same thing and get
16 better channel while you're doing that.

17 So I think, just to come up with a number
18 before the next meeting, why don't we just assume that
19 we are going to use voice infrastructure based on
20 either DAQ 3.0 or DAQ 3.4 levels, power levels in the
21 field, if no one has any objection.

22 MR. ROSS: Joe Ross. Regarding throughput
23 and coverage -- So we want high speed data coverage
24 ubiquitously throughout the District of Columbia. We

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1 don't need extremely throughput throughout the
2 District, but we at least need coverage throughout the
3 whole District so we can do AVL, so we can locate
4 cruisers, we can locate ambulances as they go
5 throughout the District.

6 A project you may be aware of, CAPWIN,
7 actually uses a browser interface, and the current
8 interface is very rudimentary. So it doesn't require
9 high speed.

10 So as we try to add more and more
11 usefulness into the interface, it's going to require
12 more and more throughput. I think everyone can
13 remember the days when they were browsing at 9.6 and
14 the kind of capabilities that were on the Web then
15 versus what is available today at 56k.

16 So I would say we need that kind of
17 throughput to each individual user.

18 CHAIRMAN NASH: Any other comments?

19 SGT. POWELL: John Powell. I would just
20 say that in the discussions we have had, and certainly
21 in talking with some of the CAPWIN folks, that a
22 browser -- the overhead from a browser interface could
23 typically be many orders of magnitude more than the
24 traffic that you are carrying in designing our

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1 systems.

2 I think that is one of the things that we
3 need to look at, Sean, is applications that are
4 transferring data need to be efficient. Just because
5 we have the capacity doesn't mean we need to use it
6 helter skelter, because sooner or later we will have
7 applications that it won't work on anymore, and we all
8 know spectrum is limited.

9 CHAIRMAN NASH: I sort of get back to this
10 whole thing of we are trying to cram 73.5 megahertz
11 worth of services into 12 megahertz worth of space. I
12 think at some point we as the public safety community
13 might have to say to individual users that this band
14 was not intended to support full motion video and,
15 therefore, we are not going to allow you to put full
16 motion video into this, because if you did, you are
17 going to use up the entire thing, and nobody else has
18 a chance to use any of it.

19 That just might be a reality here. So do
20 we try to somehow limit that up front by saying, you
21 know, that this band is a place for us to sort of
22 learn -- move our way up the learning curve? I don't
23 know. There's no easy answers in how we allocate
24 these channels.

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1 I see Harlin coming up here with a big
2 grin on his face like he's got an answer. So, Harlin?

3 MR. McEWEN: I'm Don Speights from -- I
4 was told that I was misrepresented here earlier this
5 morning. So I thought I would turn the -- I'm Harlin
6 McEwen from the IACP, and I just want to make one
7 comment, that I generally agree with what you just
8 said, in other words, that we need to have a plan that
9 keeps in mind that there are different kinds of data.

10 What I think from my perspective would be
11 the best use of this limited spectrum would be to be
12 able to transmit photographs and other kinds of images
13 that necessarily with new technology can be compressed
14 in a way that doesn't take up a lot of space, and that
15 we be looking at the video kinds of things, you know,
16 in the new 4.9 area.

17 I just really believe that trying to be
18 everything to everybody in this limited amount of
19 spectrum would be a very bad mistake. So --

20 CHAIRMAN NASH: Thank you, Harlin. That
21 sort of gets into the numbers that Sean needs as he
22 starts looking at what the data loads are. I think,
23 you know, to say that, well, we are going to allow for
24 full motion video or maybe even limited motion video

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1 is not a reasonable use of this spectrum.

2 I would tend to agree, you know, imaging,
3 (quote/unquote) "mug shots," fingerprints, you know --
4 that is an area that we could do some experimenting in
5 this band, that we ought to include those
6 applications.

7 Again, the issue is trying to figure out
8 what the data load is so that you can then try to do
9 some estimates of, you know, how much channel space do
10 you need in order to support that data load. So --

11 MR. SCHLIEMAN: I wonder if in Harlin's
12 previous employment if the NCIC 2000 project had some
13 useful data in terms of profiles that could be used
14 for this analysis.

15 CHAIRMAN NASH: Harlin, you have any --
16 Part of what we're looking at is --

17 MR. McEWEN: Well, first of all, I would
18 say no, generally. The reason is that most of the
19 work that was done on NCIC 2000 was work that was done
20 a long time ago when technology was quite different,
21 and I think we've bypassed the number that -- For
22 instance, a lot of the things that they had envisioned
23 doing, you know, can be done much differently, much
24 better in other ways than the way they envisioned it

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1 in those specifications.

2 So I don't think there is a great deal of
3 lessons to be learned there. Is that what you're
4 asking?

5 MR. SCHLIEMAN: Well, actually, I wasn't
6 looking for their solutions, but rather their input
7 parameters, because I seem to recall there were, you
8 know, some nice overviews that described different
9 kinds of traffic, including video, various
10 compressions at that time were possible.

11 MR. McEWEN: Well, yeah, let me --

12 MR. SCHLIEMAN: And I'm just looking for
13 the data input profiles, not looking at what the state
14 of the art solutions were at that time, but rather
15 what the input profiles were that they were working
16 with.

17 MR. McEWEN: Well, first of all, they were
18 using technology that has gone way beyond where that
19 was. When they were looking at this -- I remember the
20 numbers quite well -- they were looking at 14 speed
21 data, and they were looking at transferring -- If you
22 remember the story, I've told this story not in recent
23 years but in the beginning, of a single fingerprint.
24 Transmitting a single fingerprint at 14 on a normal

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1 voice channel was going to take -- I forgot the
2 numbers now, but it was like seven minutes, I think.

3 So they had a compression algorithm.
4 First of all, they looked at the normal compression
5 algorithm that they were going to use for ten prints,
6 which would have brought it down to 1.6 minutes or
7 something, and then they eventually developed their
8 own algorithm which allowed you to do it in like 17
9 seconds. All right? But that's all at 14 speed.

10 All that work, Bob, was done in a
11 different era, a long time ago. We have different
12 technology today. I just don't think there's much
13 there to be learned.

14 CHAIRMAN NASH: Well, I guess the question
15 is do we have any -- or can we get some assistance in
16 saying, you know, okay, well, the average mug shot is
17 how many megapixels or --

18 MR. McEWEN: Well, they were using -- The
19 mug shot issue -- There is a national mug shot
20 standard, and they were using jpeg. They weren't
21 using any special -- you know, again --

22 MR. SCHLIEMAN: You know, again, I guess
23 what I want to go back to is we are looking for the
24 input profile, not the processing, whether it be jpeg

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1 or mpeg or what, just what was the raw data that they
2 were starting with for a particular application.

3 MR. McEWEN: I'm just -- My answer to you
4 is you can do that, but my guess is that, because it
5 was done over probably 15 years ago, you're talking
6 really a long time ago, and I really believe there's--

7 CHAIRMAN NASH: Understood, and I guess we
8 are --

9 MR. SCHLIEMAN: I was looking for the
10 number of bits that a fingerprint is required to be
11 processed. That's all, not what the processing did,
12 but what --

13 MR. McEWEN: Let me explain that one.
14 That again is the whole point that I'm making. It's
15 exactly the point I'm making. They built an algorithm
16 that didn't send a true fingerprint. They went to a
17 system that took --

18 MR. SCHLIEMAN: They preprocessed it.

19 MR. McEWEN: Exactly. The point is today
20 you could send the real fingerprint, which is what I
21 would prefer to have so I get all the data and not
22 just some of it.

23 MR. SCHLIEMAN: Okay. How many bits in a
24 real fingerprint?

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1 MR. McEWEN: Well, I don't know that. I
2 understand. But what I'm saying is we know we can get
3 that information from them, but NCIC was not built
4 upon that concept.

5 MR. SCHLIEMAN: No, I understand about the
6 processing that NCIC was built upon. I was merely
7 looking for the input data for how many bits in a
8 fingerprint. How many bits in a mug shot, before any
9 processing was done? Then we can apply the latest
10 technology to that.

11 CHAIRMAN NASH: John?

12 SGT. POWELL: I was just going to comment,
13 too, that some of the data that came off of that was
14 looking at channel speed and how many inquiries were
15 being made, and we all know that once the throughput
16 increases that the typical field officer is going to
17 make a lot more inquiries.

18 So we need -- All those input metrics need
19 to be updated to where we are today, even though some
20 of the data may be old that we are using in the actual
21 size of the files, for example.

22 CHAIRMAN NASH: Joe?

23 MR. GALLELLI: On input, a suggestion.
24 Joe Gallelli, Kenwood.

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1 On input, to Bob's question, NLETS right
2 now is pretty sensitive to -- and they are a transport
3 business and, although they are wired transport, they
4 are looking at other options, and it's very current.

5 First of all, they keep statistics on the
6 total number of mobile data terminals. There is an
7 effort to do that. So you could get a sense for how
8 many are out there now.

9 As far as futures, I believe they have a
10 committee right now looking into everything from, I
11 know for sure, license photos, and I don't know where
12 else it goes, but there's a working committee trying
13 to determine where they go next. I think they would
14 be a great resource.

15 CHAIRMAN NASH: Okay, thank you. Any
16 other comments? Any other business for the committee?

17 Michael, I know it's 12:30.

18 MR. WILHELM: Yes. I am going to exercise
19 a prerogative and take a vote instead of get a
20 consensus. It's 12:30. I understand from Teddy
21 Dempsey that the Implementation Committee meeting will
22 be relatively short. Is that correct?

23 We've learned a lot from this committee,
24 you know, that Harlin McEwen is really Don Speight's

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1 eagle twin. But I need to have your preference on
2 whether we should continue or whether we should take a
3 lunch break.

4 Those in favor of continuing, please raise
5 their hands? Those in favor of taking a lunch break?

6 I think the sense of the group is that we continue.
7 Unless somebody objects, I propose we continue without
8 taking a short break right now, and just go into the
9 Implementation Subcommittee.

10 (Whereupon, the foregoing matter went off
11 the record at 12:34 p.m.)
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